

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Ohio**

Site Summary Level: **Columbus Environmental Management Project**

Project **OH-CL-03-D / Project Management, Site Support & Maintenance**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0079**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope:

The scope of this project is to provide management and technical support to the field work involved in the two related King Avenue and West Jefferson Decontamination Projects in the areas of surveillance & maintenance, project management, regulatory compliance, and institutional relations. Core S&M activities include: hazard control and stabilization, inspection and maintenance of systems/equipment, emergency call-outs, industrial safety and industrial hygiene monitoring/oversight, radiation monitoring, surveillances and comply with U.S. NRC emergency preparedness exercises, as necessary. Site support to S&M and D&D programs include radioanalytical laboratory services, laundry operations, respiratory protection, training, waste management, and dosimetry/bioassay data evaluation, record keeping and reporting functions. Core project management activities are in compliance with latest DOE PMS requirements and include project planning, cost and schedule control, performance reporting, quality assurance, records management, training, permitting, regulatory compliance/oversight, and public participation.

Technical Approach:

This is an operating project which supports the two pure D&D projects at this location.

Project Status in FY 2006:

This project is scheduled to be completed in FY 2005.

Post-2006 Project Scope:

None.

Project End State

The end state of this support project is tied to the completion of both the King Avenue site and the West Jefferson North site projects. These projects are scheduled to be completed within the FY 2005 vision.

Cost Baseline Comments:

The DOE-approved baseline (Revision 2) was based on a bottoms-up methodology. It was established in 1992 and it is out of date. Two more recent studies have been conducted: The Paths to Closure baseline costs independently estimated by TLG Services in January 1996; and a draft summary baseline (Revision 3) by Battelle in June 1996. Battelle will be asked to revise the current baseline as part of ongoing contract negotiations. The major assumptions for the upcoming revision will include: (1) The project will be completed in FY 2005; (2) The work will be performed under a negotiated DOE/Battelle cost share arrangement per the W-7405-ENG-92 contract with new terms and conditions; and (3) Funding of \$16.1M from FY 2001 - 2003 (escalated by 2.7% inflation), \$19M for FY 2004, and \$15M for FY 2005.

Safety & Health Hazards:

The three buildings at the West Jefferson North site were constructed in the mid-1950s and have exceeded their design life. The primary hazard at the

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site is the Building JN-1 Hot Cell facility, and the risk is based on the current inventory of radionuclides. An estimated 60,000-80,000 curies of radioactivity is present in the hot cells as metallurgical samples (from spent fuel examination), contaminated equipment, transfer pool filter resins, and as fixed and loose contamination on cell surfaces. Radiation fields in the cells themselves range from 10 to 100 R/hr with specific items reading as high as 500 R/hr. Loose materials within the cells will require field surveys and packaging for shipment offsite. Most of the high-level contamination is from transuranics (TRU), mixed fission products, and activation products. The Building JN-2 Critical Assembly facility is the most lightly contaminated of the site buildings. It houses the project's radioanalytical laboratory and instrument calibration shop. The Building JN-3 Research Reactor facility was de-fueled and partially dismantled in 1974. Approximately 15 curies of activity remain in the building, associated with the bioshield, the fuel pool, various material storage areas, and as sludge in piping and drains. During the remaining life of the project, the project expects to generate up to 370 m3 of transuranics waste, 11,000 m3 of low level waste and ~ 6 m3 of mixed low level waste.

Under the EM-40 Relative Ranking System, the hazard associated with the hot cells is designated as SIGNIFICANT. Because of the age of the cells and their design, maintenance of critical systems (e.g., ventilation) must be done manually within the cells. For example, the HEPA filters in the High Energy Cells require change-out every 2 years (or more frequently if the contents of the cell are disturbed). This results in exposure to project workers for every maintenance entry. Thus, an EVIDENT pathway for exposure exists, and receptors are IDENTIFIED. These factors place the Building JN-1 Hot Cell facility in the second highest hazard category of the EM-40 ranking system.

The facilities at Battelle which are undergoing decontamination have no continuing research mission with nuclear materials. A facility hazard analysis and classification study completed in 1992 concluded that there were two radiological facilities (below Category 3) associated with the project:

1) The waste management Central Staging Area in Building (KA-3) -- remediated in 1994; 2) The JN-1 Hot Cells at the West Jefferson site. All other buildings were determined to be non-radiological facilities based on inventory of radionuclides. Between FY 1994 and FY 1996, a major campaign was undertaken to remove all unused and unnecessary chemicals from the site. A chemical inventory assessment completed in July, 1997, concluded that the small quantities of chemicals still remaining pose no concerns as long as they are used/handled under proper controls. Non-radiological hazards identified by the project are similar to those found throughout the construction industry (e.g., falls, falling objects, crushing, electrocution) and are controlled through an aggressive Industrial Safety program.

Safety & Health Work Performance:

Battelle has issued a Corporate Safety Policy and has site wide program plans covering: Health and Safety, Radiation Protection, and Emergency Preparedness. The BCLDP prepared separate Health and Safety and Radiation Protection Plans in 1992; subsequently, the BCLDP Health and Safety Program was placed under the Corporate Safety Program. A set of implementing safety procedures now guides all work performed. These procedures are matched to the known and anticipated Industrial Safety and Industrial Hygiene hazards associated with decontamination activities at the site. Approval to perform work on the project is granted through successive modifications to contract W-7405-ENG-92. Annual work plans are prepared by the contractor and approved by the DOE on-site project manager. DOE approval is contingent upon the contractor demonstrating that all required equipment, procedures, and trained staff are available to perform the work safely and effectively. Battelle operates under a Readiness Review procedure which offers a graded approach depending on the level of hazard and cost associated with specific activities. Individual work activities are authorized under a work instruction system maintained by Battelle. Prior to starting any activity within a building or area, a comprehensive physical and radiological survey is performed to verify the type, extent, and location of all hazards present. The work instruction describes the task to be performed, the relevant procedures, personnel requirements, and any required equipment. Attached to each work instruction is a safety checklist and,

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when necessary, a radiological work permit. Approval of the work instruction requires the sign-off of the building/functional manager, the safety manager, and the radiation protection manager.

Safety and Health Direct Data

All activities necessary to maintain control of radioactive material at the West Jefferson site will be performed under all funding scenarios. Even if DOE were to stop funding the project, Battelle, the facility owner, would still assure public health and safety under the requirements of their license with the U.S. NRC. Funding cuts, however, would extend DOE's liability for the clean-up of this site, add significantly to overall costs of the effort, and continue to require radiation doses to site workers without commensurate benefit. Battelle Memorial Institute is a non-government organization and thus primary support for many of the safety and health functional areas is provided by the owner's corporate organization. The primary safety and health drivers for the project are the radiation protection standards promulgated by the U.S. NRC (e.g., 10 CFR 20), and the general industry, construction safety, and hazardous waste operations standards of OSHA (29 CFR).

ACTIVITIES DESCRIPTION:

1. Management and Oversight: DOE has no direct contractual authority to enforce OSHA or radiation safety requirements; these are covered by Battelle's programs under appropriate regulatory authorities (e.g., U.S. NRC).
2. Emergency Preparedness: The BCLDP Emergency Response program tiers from the Emergency Preparedness program for the Battelle corporate organization. BCLDP has implemented a program of cooperative agreements with emergency service providers in a two-county area covering both King Avenue and West Jefferson sites.
3. Fire Protection: Fire protection services are provided by Battelle Corporate Operations, who oversee funding, inspections, personnel, and equipment. Protective equipment is maintained under contract, and annual fire protection system reviews are provided by Factory Mutual.
4. Industrial Safety and Hygiene: A detailed OSHA program exists to integrate industrial hygiene, worker safety, and industrial safety requirements. Safety is emphasized through a program of training, pre-job briefings, and management oversight. Task specific safety checklists are prepared for each work instruction, reviewed, and approved before BCLDP work commences. In addition, safe work plans are prepared for all major activities and are key elements of the project's readiness reviews. Project safety staff perform daily walkdowns of work areas.
5. Industrial Health: Primary support in this functional area is provided to the BCLDP by the corporate organization. However, within the scope of the Safety and Health activities, the project does include: hazard communications; personnel protection; and physical controls.
6. Nuclear Safety: This area has only minor applicability. The project has reduced the inventory of radioactive material to an extent that all buildings are radiological facilities only.
7. Occupational Medical Services: Support in this functional area is provided to this project by the corporate organization.

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8. Radiation Protection: While Battelle is contractually exempt from the DOE's Nuclear Safety Rules, the project radiation protection program under 10 CFR 20 meets essential equivalent requirements. The BCLDP: (1) installs and operates radiation monitoring and control equipment; (2) provides surveillance and maintenance capabilities; (3) provides for health physics oversight; (4) provides radiation information and warning postings; (5) conducts personnel and facility radiation monitoring; (6) uses a system of radiation work permits; (7) maintains a personnel dosimetry and bioassay program; (8) conducts site environmental studies; (9) maintains and operates fixed and portable instrumentation for radiation detection and measurement; (10) maintains all radiation exposure and safety and health records; and (11) conducts contamination control.

9. Transportation Safety: Packaging and transportation of BCLDP's radioactive waste materials is provided by BCLDP's Waste Management Group in accordance with all DOE, NRC, and DOT requirements.

PBS Comments:

Baseline Validation Narrative:

Revision 2 of the CEMP baseline is out of date, but it has gone through numerous validation/review processes since its inception. These include the annual project and budget validations conducted by various HQ organizations, the more recent project and budget validations conducted by the Ohio Field Office, and the EM-1 directed Management Review, conducted by EM-HQ and the Chicago Field Office staff. Other validations/reviews include the "bottoms-up" cost estimate reviews conducted by the Core of Engineers (COE), and the bottoms-up estimates for the King Avenue and West Jefferson sites that were initiated by the DOE Project Manager, and conducted by TLG, Inc. The consistent theme coming from all of these validations/reviews is that, based upon the best data available at the time of the reviews, the project was being managed in an appropriate manner, and the current plans and budgets were in fact reasonable for the scope of work known at that time.

General PBS Information

Project Validated? Yes **Date Validated:** 5/15/1996

Has Headquarters reviewed and approved project? No

Date Project was Added:

Baseline Submission Date: 7/8/1999

FEDPLAN Project? No

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	N	Y	N	N	N	Y

Project Identification Information

DOE Project Manager: Thomas A. Baillieul

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General PBS Information

DOE Project Manager Phone Number: 614-760-7372
DOE Project Manager Fax Number: 614-718-3190
DOE Project Manager e-mail address: thomas.a.baillieul@ohio.doe.gov
Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	23,603	0	23,603	724	724	2,045	2,475	1,593	2,841	3,200	3,300	3,300	3,300	3,300	0	
PBS Baseline (constant 1999 dollars)	21,875	0	21,875	724	724	2,045	2,475	1,593	2,766	3,034	3,047	2,966	2,888	2,812	0	
PBS EM Baseline (current year dollars)	23,603	0	23,603	724	724	2,045	2,475	1,593	2,841	3,200	3,300	3,300	3,300	3,300	0	
PBS EM Baseline (constant 1999 dollars)	21,875	0	21,875	724	724	2,045	2,475	1,593	2,766	3,034	3,047	2,966	2,888	2,812	0	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project:

Current Projected End Date of Project: 9/30/2005

Explanation of Project Completion Date Difference (if applicable):

PBS OH-CL-03-D was officially created in 1999, therefore DID NOT exist in the June 1998 ACPC. The "Last Year's Cost Estimate" provided in the Reconciliation tab accounts for FY97 and/or FY98 Actual Costs attributed to work scope that is now described in CL-03-D, which was previously shown in CL-03.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	Actual 1997 Cost:	724	Actual 1998 Cost:	2,475
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	-3,199	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):	-86	
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	-3,285			

Project Cost Changes

Cost Adjustments Reconciliation Narratives

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Project Reconciliation

Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-):

Cost Associated with New Scope (+): 19,106 \$19,106K Scope transferred from CL-03.

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal: 15,821

Additional Amount to Reconcile (+): 3,285 \$3,305K costed to CL-03-D prior to establishment of PBS in IDMS. (\$20K) FY97 escalation error.

Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars): **19,106**

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Project start milestone			1/1/1998								
Project end milestone			9/30/2005							Y	
Issue 1999 Site Treatment Plan Update			12/31/1999	12/31/1999			Y				
Issue 2000 Site Treatment Plan Update			12/31/2000	12/31/2000			Y				
Issue 2001 Site Treatment Plan Update			12/31/2001	12/31/2001			Y				
Issue 2002 Site Treatment Plan Update			12/31/2002	12/31/2002			Y				
Issue 2003 Site Treatment Plan Update			12/31/2003	12/31/2003			Y				
Issue 2004 Site Treatment Plan Update			12/31/2004	12/31/2004			Y				
Issue final Site Treatment Plan Report			9/30/2005	12/31/2005			Y				

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Project start milestone				Y			1	1	1		Initiate management and technical

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Project end milestone					Y	Y	1	1	1		support for the field work involved in the two related King Avenue and West Jefferson Decontamination Projects. Complete management and technical support for the field work involved in the two related King Avenue and West Jefferson Decontamination Projects.
Issue 1999 Site Treatment Plan Update							1	2	4	Y	Prepare and submit an update of the Project Site Treatment Plan to the Ohio EPA.
Issue 2000 Site Treatment Plan Update							1	2	4		Prepare and submit the annual update of the project Site Treatment Plan to the Ohio EPA.
Issue 2001 Site Treatment Plan Update							1	2	4		Prepare and submit the annual update of the Project Site Treatment Plan to the Ohio EPA.
Issue 2002 Site Treatment Plan Update							1	2	4		Prepare and submit the annual update of the Project Site Treatment Plan to Ohio EPA.
Issue 2003 Site Treatment Plan Update							1	2	4		Prepare and submit the annual update of the Project Site Treatment Plan to Ohio EPA.
Issue 2004 Site Treatment Plan Update							1	2	4		Prepare and submit the annual update of the Project Site Treatment Plan to Ohio EPA.
Issue final Site Treatment Plan Report							1	1	4		Prepare and submit the final report pursuant to Project mixed waste to Ohio EPA.

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